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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,341	09/25/2003	Stephen A. Baum	P-26,015 US1	7066
23307	7590	01/19/2006	EXAMINER	
SYNNESTVEDT & LECHNER, LLP 2600 ARAMARK TOWER 1101 MARKET STREET PHILADELPHIA, PA 191072950			PONNALURI, PADMASHRI	
			ART UNIT	PAPER NUMBER
			1639	

DATE MAILED: 01/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/671,341

Applicant(s)

BAUM, STEPHEN A.

Examiner

Padmashri Ponnaluri

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 46,47 and 49-65 is/are pending in the application.
- 4a) Of the above claim(s) 59 and 63-65 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 46-47, 49-58 and 60-62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment and the response filed on 10/21/05 has been fully considered and entered into the application.
2. Claim 48 has been canceled by the amendment filed on 10/21/05.
3. Claims 46-47, 49-65 are currently pending.
4. Claims 59 and 63-65 are withdrawn from consideration.
5. Claims 46-47, 49-58 and 60-62 are under consideration.

Election/Restrictions

6. Applicant's election of a "rack having a plurality of rods sized to be inserted through an aperture formed in each support" (e.g. 1st support transfer device of claims 52 and 53); and polypropylene spheres as the solid support in the reply filed on 1/10/05 which is asserted to read on claims 46-58 and 60-65 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). It is noted that claims 63-65 do not read on the elected invention since these claims address "the transfer block" which is present in the 3rd support transfer device; but not the elected invention.
7. Claims 59 and 63-65 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention.

Oath/Declaration

8. The objection to the oath or declaration set forth in the previous office action mailed on 4/21/05 has been withdrawn in view of the ADS, and applicant's response.

Specification

9. The amendment to the specification to update the parent application data has been considered.

Withdrawn Claim Rejections

10. The new matter rejection of claims 57 and 60 has been withdrawn in view of the amendment to the claims filed on 10/21/05.

11. The written description rejection of claims 46-51 and 54-58 set forth in the previous office action has been withdrawn in view of the amendment and response.

12. The rejection of claims 46-58 and 60-62 under 35 U.S.C. 112, as being indefinite and lacking antecedent basis have been withdrawn in view of the amendment and response filed on 10/21/05.

13. The rejection of claims 46-47, 50, 51 and 55-58 under 35 U.S.C. 102(e) as being anticipated by Campbell et al. US Pat. No. 6,083,682 (7/00: filed 12/97) has been withdrawn in view of the amendment filed on 10/21/05.

14. The rejection of claims 46-47, 49-51 and 54-58 under 35 U.S.C. 103(a) as being unpatentable over Campbell US Pat. No. 6,083,682 (7/00: filed 12/97) and Hudson US Pat. No. 5,585,275 (12/96) has been withdrawn in view of the amendment file don 10/21/05.

Maintained Claim Rejections

15. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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16. The obviousness-type double patenting rejection of claims 46-49, 51 and 54-58 over claims 1-12 of U.S. Patent No. 6,541,211, has been maintained for the reasons of record.

17. The rejection of claims 46-48, 49-51 and 54-58 under 35 U.S.C. 103(a) as being unpatentable over Campbell US Pat. No. 6,083,682 (7/00: filed 12/97) in view of Nova et al. US Pat. No. 5,961,923 (10/99: filed 9/96 or earlier), Moran et al. WO 97/35198 (9/97: filed 3/96) or Lebl et al. US Pat. No. 6,045,755 (4/00: filed 3/97) has been maintained for the reasons of record.

Response to Arguments

18. *Claims 46-49, 51 and 54-58 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,541,211. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent claims teach stacked (e.g. in a Z direction) a plurality of 2-D frames (e.g. a plurality of planes) forming a 3D array and the placement of supports with building blocks therein (e.g. functionalized supports with attached R1 groups) for parallel syntheses of combinatorial libraries. The patent claims teach spherical polypropylene supports (e.g. lanterns. Gears) within the scope of the present invention. Additionally, the supports are removable while retaining spacial addresses (e.g. see patent claim 3). Devices for achieving the claimed placement and removal of solid supports while retaining spacial addresses are described, said devices being within the scope of the presently claimed invention.*

See.e.g. fig. 4-7.

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19. Applicant's arguments filed on 10/21/05, regarding the obviousness-type double patenting rejection of claims over US patent 6,541,211 B1, have been fully considered but they are not persuasive.

Applicants argue that the present claims recite a 'functionalizing a plurality of solid supports; and the reference claims do not recite the step of functionalizing the solid supports.

Applicant's arguments are not persuasive. Since the reference claims recite 'method of synthesizing combinatorial libraries on solid supports; and the solid supports are lanterns. However, the claims do not recite the step pf 'functionalizing.' However, the reference in the specification discloses that 'lantern' is made of polypropylene with polystyrene surface; and the polystyrene surface is functionalized to react with reagents used in synthesizing the compound libraries (i.e., see column 15). Thus, the solid supports (lanterns) used in the reference claimed methods are functionalized such that the reagents would react with the surface.

Thus, the obviousness-type double patenting rejection of record has been maintained.

20. *Claims 46-48, 49-51 and 54-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell US Pat. No. 6,083,682 (7/00: filed 12/97) in view of Nova et al. US Pat. No. 5,961,923 (10/99: filed 9/96 or earlier), Moran et al. WO 97/35198 (9/97: filed 3/96) or Lebl et al. US Pat. No 6,045,755 (4/00: filed 3/97).*

The presently claimed invention is directed to a method comprising:

- a) functionalizing a plurality of supports;*
- b) placing the supports in a 3D array; and*

c) performing parallel syntheses of a library of molecules in the 3D array of supports with 3D diversity. See claim 46.

Claim 48 further claims a "support transfer device" for placing the supports in the 3D array.

Claim 49 further claims a "support transfer device" for "removing the plurality of supports.

Claim 54 further requires that the "support transfer device" remove the supports one Z plane at time.

Campbell et al. disclose a system for parallel syntheses of a combinatorial library comprising a 3D array of aligned solid phase supports with a channel in fluid communication which are comprised of stackable middle plates (e.g. 2-D frames) with a plurality of reaction zones (e.g. functionalized /derivatized solid supports graft copolymers of poly/ethylene or propylene etc: see col. 12:) attached to said frames (e.g. see bottom of col. 2; col. 6; bottom of col. 19-col. 20, which includes sheets and resin beads). See e.g. see col. Col. 4; figures 1-15 and patent claims. The solid supports (e.g. sheets or resin beads) abut each other and are adapted to being coupled together (e.g. indeed may be stacked). The supports (e.g. polypropylene: including membranes or sheets/beads or spheres : see col. 12-13) are functionalized with the further attachment of one or more monomers before placement of the support in the apparatus (e.g. see bottom of col. 4; col. 9, especially lines 45-55: "solid support which is preferably prederivatized ..."; col. 12; col 17, especially lines 33-41: "The supports 36 are preferably each provided with an initial building block (e.g. "R1") derivatized thereon before they are placed in the reaction vessels"). The reference teaches that the derivatized supports in the 3D array may possess columns having uniquely R1 (initial monomer) members. See e.g. col. 4, especially lines 28-67, especially lines 54-65). Additionally, the Campbell reference disclosed reaction zones in 3D (e.g.

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length/width height) form a column (e.g. see col. 3, lines 1-15) of reaction zones containing a single support (or multiple supports) within each cylindrical member (38) (e.g. a well). It is noted that the wells contain reaction zones which are in the shape of a trough or are cylindrical (e.g. see figures e.g. 4, 5, 7 and 9) and the plurality of 3D stacked solid supports are contained within a plurality of reactors which are sized to allow complete immersion in a reagent (e.g. see fig. 4: reaction vessel 30; solid support 36; and col. 10). Following syntheses, the synthesized compounds are cleaved from the solid supports (e.g. see col. 18, especially lines 24-45).

The Campbell method differs from the presently claimed invention by failing to explicitly teach:

- a. "A support transfer device" for placing the supports in the 3D array (Clm 48);*
- b. "A support transfer device" for removing the plurality of supports (Clm 49); and*
- c. That the "support transfer device" removing the supports one Z plane at a time (Clm 54).*

Support (e.g. polymeric i.e. polypropylene; of different shapes i.e. beads etc.) transfer devices (e.g. including automated) for placing and/or removal of the supports from in parallel synthetic array system (e.g. while retaining spatial addresses) for achieving high throughput syntheses/screening were known in the art.

Nova et al. disclose devices (e.g. including funnels: i.e. see figures, especially figures 6-9; 11-13) for removal/placement of solid supports (e.g. col. 11-12: MICROBALLS; MICROTUBES; col. 24; col. 44 especially tagged: ie. Col. 61-62) into/from a parallel syntheses apparatus.

Moran et al. disclose a method of performing parallel spatially addressable syntheses in which the supports (e.g. polyethylene crowns) are arranged (e.g. placed) and removed (e.g.

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redistributed) in a manner between a series of arrays in order to maintain the physical location (e.g. spatial address) via carrier devices , which are automatable (see pages 9-17 ; examples; claims).

Lebl et al. teach an integrated robotic apparatus for parallel spatially addressable high throughput 2D/3D (e.g. stacked support) syntheses. Various automated devices (e.g. storage vessels, pumps and multiple tips) for dispensing solid supports onto the synthetic 2D/3D apparatus and devices (e.g. gripper tools) for removing solid supports from the synthetic apparatus are taught. See figures, especially figures, especially figures 1-9, 11; col. 5-7; col. 10-37; examples; patent claims

One of ordinary skill in the art at the time of applicant's invention would have been motivated to utilize conventionally available Nova/Moran/Lebl support transfer devices in the Campbell et al. reference method since these conventional devices address parallel syntheses as in the Campbell reference and would further lead to improved high-throughput syntheses/screening and/or ease of support transfer, especially when automated.

Accordingly, it would have been prima facie obvious to one of ordinary skill in the art at the time of applicant's invention to utilize the Nova/Moran/Lebl support transfer devices in the Campbell reference method and arrive at the presently claimed invention.

21. Applicant's arguments filed on 10/21/05, regarding the rejection of claims over Campbell, Nova et al, Moran et al or Lebl et al, have been fully considered but they are not persuasive.

Applicants traverse the rejection. Applicants argue that Nova et al discloses placement of solid support using an apparatus that places or removes microballs or microtubes one at a time.

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Nova et al do not disclose that the placement of solid supports is performed with a support transfer device that transfers a plurality of supports at a time.

Applicant's arguments have been considered and are not persuasive.

In response to applicant's arguments against the references individually (Nova et al, and Moran et al, and Lebl et al), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case the rejection was based on combined teachings of Campbell, Nova et al, Moran et al or Lebl et al.

Applicants arguments regarding that the Nova et al do not disclose that the placement of solid supports is performed with a support transfer device that transfers a plurality of supports at a time. Applicants arguments have been considered and are not persuasive, it is noted that the features upon which applicant relies (i.e., 'the placement of solid supports is performed with a support transfer device that **transfers a plurality of supports at a time**) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

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USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the references provide the advantages of automation in combinatorial synthesis, and teach the apparatus used in the combinatorial synthesis.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant's arguments that there is no teaching in Nova, Moran, or Lebl either individually or any combination thereof, which would yield a transfer device that transfers a plurality of solid phase supports.

Applicants arguments have been considered and are not persuasive, because Nova et al disclose devices for removal and replacement of solid supports; Moran et al disclose devices used in combinatorial synthesis; and Lebl et al disclose robotic apparatus for parallel synthesis; and Campbell et al teach a system for parallel syntheses of a combinatorial library comprising a 3D array of aligned solid phase supports. Thus, it would have been obvious to one skilled in the art to the devices taught by Nova et al, Moran et al or Lebl et al with the method taught by Campbell et al. A person skilled in the art would have been motivated to use the combinatorial library synthesis apparatus taught by the references in the combinatorial methods taught by

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Campbell et al with the expectation of high-throughput synthesis and screening of combinatorial arrays.

Conclusion

22. No claims are allowed.

23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Padmashri Ponnaluri whose telephone number is 571-272-0809. The examiner can normally be reached on Monday through Friday between 7 AM and 3.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Padmashri Ponnaluri
Primary Examiner
Art Unit 1639


PADMASHRI PONNALURI
PRIMARY EXAMINER

11 January 2006